Notice of Allowability	Application No. 10/813,458	Applicant(s) ZUREK ET AL.	
	Examiner MINH D. DAO	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.

2. ☒ The allowed claim(s) is/are *1-16*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

REASONS FOR ALLOWANCE

1. Claims 1-16 are allowed.

2. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the closest prior arts of record are: Johnson (US 2002/0028693), Aubauer et al. (US 7,263,196), and Hwang (US 7,103,393). Johnson teaches a conventional mobile telephone incorporating two speakers for both conventional and "hands free" use of the telephone is provided with acoustic ducts to allow transmission of sound through the cover. The acoustic duct for the speaker having low acoustic volume is provided in the face of the cover immediately beneath the speaker and can be positioned comfortably against the ear. Aubauer teaches a mobile communication terminal with flat loudspeaker. The flat loudspeaker with a diaphragm and actuation parts for the diaphragm. The use of a flat loudspeaker offers the advantage that it can extend over large areas inside the housing of a mobile communications terminal, so that a large effective area is available for sound radiation. Hwang teaches a sound output method of a mobile communication terminal including a sound output system comprising at least two amplifiers and at least two speakers connected to the amplifiers, the method comprising the steps of: amplifying a sound signal with the amplifiers when the sound signal is generated; and outputting the sound signal amplified by the amplifiers. However, Johnson, Aubauer, and Hwang, alone or in combination, fail to teach a handheld device loudspeaker system comprising: a first loudspeaker that emits

a first acoustic wave that is substantially omni-directional, said first loudspeaker being described by a first electric-to-acoustic signal transfer function for acoustic signals radiated in a first direction; a second loudspeaker that emits a second acoustic wave in the first direction and emits, in a second direction that is opposite the first direction, a third acoustic wave that is opposite in phase relative to the second acoustic wave, said second loudspeaker being described by a second electric-to-acoustic signal transfer function for acoustic signals radiated in the first direction; and one or more drive circuits coupled to the first loudspeaker, and the second loudspeaker, said one or more drive circuits comprising: a first signal processing circuit for performing one or more filter functions, wherein the one or more filter functions compensate for a difference between the first electric-to-acoustic signal transfer function, and the second electric-to-acoustic signal transfer function as specified in he claim.

Regarding claim 14, the closest prior arts of record are: Johnson (US 2002/0028693), Aubauer et al. (US 7,263,196), and Hwang (US 7,103,393). Johnson teaches a conventional mobile telephone incorporating two speakers for both conventional and "hands free" use of the telephone is provided with acoustic ducts to allow transmission of sound through the cover. The acoustic duct for the speaker having low acoustic volume is provided in the face of the cover immediately beneath the speaker and can be positioned comfortably against the ear. Aubauer teaches a mobile communication terminal with flat loudspeaker. The flat loudspeaker with a diaphragm and actuation parts for the diaphragm. The use of a flat loudspeaker offers the advantage that it can

extend over large areas inside the housing of a mobile communications terminal, so that a large effective area is available for sound radiation. Hwang teaches a sound output method of a mobile communication terminal including a sound output system comprising at least two amplifiers and at least two speakers connected to the amplifiers, the method comprising the steps of: amplifying a sound signal with the amplifiers when the sound signal is generated; and outputting the sound signal amplified by the amplifiers. However, Johnson, Aubauer, and Hwang, alone or in combination, fail to teach a wireless communication device comprising: a transceiver for receiving wireless signals that include audio signals; a processor coupled to the transceiver for processing said audio signals included in said wireless signals; a first loudspeaker coupled to said processor, wherein said first loudspeaker emits a first acoustic wave that is substantially omni-directional, said first loudspeaker being described by a first electric-to-acoustic signal transfer function for acoustic waves radiated in a first direction; a second loudspeaker coupled to said processor, wherein said second loudspeaker emits a second acoustic wave in the first direction and emits, in a second direction that is opposite the first direction, a third acoustic wave that is opposite in phase relative to the second acoustic wave, said second loudspeaker being described by a second electric-to-acoustic signal transfer function for acoustic waves radiated in the first direction; and a program memory coupled to the processor, said program memory including a first program that is executed by the processor, wherein said processor is programmed by said first program to: apply one or more filter functions to said audio signals, wherein one or more filter functions compensate for a difference between the first electric-to-

acoustic signal transfer function, and the second electric-to-acoustic signal transfer function; and drive said first and second loudspeakers with said audio signals as specified in the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MINH D. DAO whose telephone number is 571-272-7851. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW ANDERSON can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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